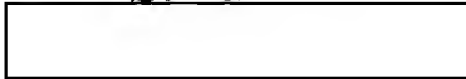


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No. 3182/65

CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
22 December 1965

INTELLIGENCE MEMORANDUM

An Appraisal of the Bombing
of North Vietnam*

Summary

US air strikes against North Vietnam have been going on for almost 11 months, but are just beginning to put a noticeable crimp in the DRV's primarily agrarian economy. Attrition is creating significant problems in production and distribution, and in the allocation of manpower and management resources. There continues to be no indication of any significant decline in North Vietnamese morale or of any softening in Hanoi's hard line toward negotiations as a result of the bombings. Disruptive effects on the DRV's economy have been noted, however, in regime propaganda, and Vietnamese dependence on outside aid is growing. US air strikes continue to place primary emphasis on interdiction of lines of communication in North Vietnam but have not significantly reduced DRV capabilities for logistic support of the war in South Vietnam.

Effects on the DRV Economy

1. The US/GVN air strikes to date fall far short of crippling the North Vietnamese economy. But the sustained and increasing rate of attrition is causing the economy to develop a noticeable limp. Even with increasing assistance from other Communist

*This memorandum is CIA's issuance of a joint CIA-DIA study prepared periodically to assess the effects of US bombing of North Vietnam.

DIA review(s)
completed.

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[redacted]

countries, the adverse impact is now becoming more apparent in the economically important areas of the country. The extension of interdiction measures to lines of communication joining important industrial centers is compounding already aggravated distribution problems. The regime is apparently making increased use of ocean transport to provide relief to overland distribution channels. Hanoi now admits publicly to a substantial upheaval of production plans in many industrial plants. Import and export programs are in disarray. The planned program under the First Five-Year Plan (1961-1965) has undergone substantial rearrangement. [redacted]

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25X1 [redacted] implementation of the Second Five-Year Plan scheduled to begin in January 1966 has been postponed. The increasing rate of deterioration of some important sectors of the economy still has not greatly reduced total economic activity. The primary strains continue to be in distribution, allocation of manpower, and management resources. In the face of great difficulties, however, priority traffic continues to move. The air strikes have not yet halted, or even reduced, priority short-term support by the economy to North Vietnam's military efforts, but this support has been maintained only by transferring men and materials away from long-term activities and projects.

2. The air strikes against overland transport facilities and routes in North Vietnam have hampered the movement of personnel, equipment, and supplies but have not significantly reduced the North Vietnamese capability to provide and increase their logistic support for the Communist forces in Laos and South Vietnam. The capacity of specific transport routes has been reduced by the bombings, but on most routes it is still in excess of the present level of logistic movements. The North Vietnamese have demonstrated a remarkable capability to keep supplies moving in spite of the air attacks. The various improvements and improvisations instituted by the Communists have increased their capability to move men and supplies into Laos and South Vietnam during the present dry season. Even with an intensification of air attacks it is doubtful that the capacity of the overland transport system can be reduced below the level required to provide logistic support at the existing scale of combat in South Vietnam.

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3. The ability of the North Vietnamese to keep the industrial economy moving on a makeshift basis, to maintain priority transportation movements, and to provide the support necessary for military operations, is in large part a result of increasing assistance from other Communist countries. This assistance has taken several forms: the assignment of elements of two Chinese railroad engineer divisions to help keep transportation lines open; large increases in shipments of motor trucks; the provision of structural steels and prefabricated shapes for bridge repair and reconstruction; and the assignment of technical and industrial advisers from the USSR and European Satellite countries. The amount and scope of this support continued to grow in recent weeks.

4. Direct losses caused by damage to economic facilities and equipment are now estimated at almost \$23 million and measurable indirect losses amount to almost \$9 million. The cost of permanent reconstruction of rail/highway bridges would be more than \$10 million, and the replacement or repair of destroyed or damaged transport equipment would cost an additional \$5.4 million. The cost of temporary repairs to bridges would be more than \$1 million. Reconstruction of the damaged electric power plants, the petroleum storage facilities, and the Nam Dinh textile mill would cost about \$6 million. The loss of foreign exchange earnings totals at least \$5.2 million. The growing losses from lower production throughout the economy can be quantified only in agriculture where losses in the fall rice crop may have amounted to about \$3.5 million. The measurable costs of reconstruction, replacement, and repair of damaged facilities, if attempted, would represent more than 20 percent of total gross annual investment in industry. The additional costs which North Vietnam is incurring for temporary expedients to compensate in part for the damaged facilities cannot be quantified at this time.

5. The most severe disruptions of economic activity in North Vietnam have been in the southern part of the country where the transportation system has been heavily bombed and electric power stations have been destroyed. Industry in this part of the

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country normally accounts for only about 20 percent of total gross industrial output, however, and consists mainly of textile production, food processing, lumber and paper production, chromite mining, and processing of crude phosphate fertilizers. Continued shortages of manpower and equipment in the areas directly affected by bombing have hampered reconstruction efforts and created severe hardships for local populations, but the primarily rural nature of these regions has permitted continued functioning of the subsistence economy.

6. The disruptions caused by bombing are now being felt in the more economically important areas of the country. The difficulties in maintaining production in the face of insoluble management problems and shortages of skilled manpower have been compounded by the disruption of the distribution system. In November, for the first time, the transportation system connecting North Vietnam's major industrial areas was attacked. Through rail service between Hanoi and Nam Dinh was interdicted by the destruction of the Phu Ly railroad bridge on the Hanoi-Vinh line. However, rail traffic is apparently still moving on stretches of this rail line between interdicted points. A combination railroad and highway bridge serving the Hanoi-Haiphong railroad line and Route 5 was also attacked. The damage to this bridge was light and by undertaking priority repair measures rail service on the line was quickly restored. Nevertheless, these air strikes undoubtedly further disrupted the flow of exports, imports, and goods for domestic use. According to the regional press, distribution problems resulting from damage to the transportation system have "turned upside down" production plans in many enterprises in Haiphong, where some plants have been substituting inferior materials for unavailable regular supplies. Essential materials and equipment can still be delivered to Haiphong by sea, however, and until 1 December other industrial centers could still receive supplies from China via the Hanoi - Dong Dang rail line where previous bomb damage was quickly repaired. On 1 December, however, the Cao Nung railroad bridge on the Hanoi - Dong Dang line was again attacked and several spans were dropped. Several weeks will be required to make temporary repairs to the bridge. In the meantime some cargo

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probably will be moved across the river by fording, and some can be moved by road on alternate routes such as 13B, which has not been attacked, and 1A and 18, where enough time has probably elapsed for bomb damage to have been repaired. Some freight normally shipped by rail between China and North Vietnam probably was already being transferred to sea transportation before the 1 December strike. This action was taken so that high priority items such as military supplies could be handled more easily by rail. Despite the increasing disruptions, work on major economic development projects of the First Five-Year Plan (1961-1965) is continuing and several new projects have been undertaken in the past few months.

7. The Hanoi - Lao Cai railroad line reportedly was opened for through traffic early in December even though there were a series of strikes against this line at the end of November. Although photography is not available to assess the results of these strikes, damage must have been slight or negligible for the line to be opened so quickly. If the line remains open we would expect to see a resumption of apatite shipments moving to Haiphong for export. Practically no Chinese transit traffic to and from Yunnan has moved through North Vietnam since July. There have been no indications, however, that either Yunnan or the rest of China has suffered serious shortages because of the loss of transit service through North Vietnam. Truck transport within China apparently is being used to replace this transit service. Transportation in the southern part of North Vietnam continues to be complicated by air attacks. In spite of heavy damage to bridges, substantial amounts of both economic and military traffic continue to be hauled by motor truck and on a makeshift rail line south of Vinh. The movement of all types of traffic on the waterways also appears heavy. Supplies are again being moved from North Vietnam on Route 15 to Routes 12 and 23 in Laos through Mu Gia Pass and on a newly reported truckable by-pass around the Pass. The transport system of North Vietnam appears to be carrying as much tonnage during 1965 as it did during 1964. The interruptions on certain rail lines, however, will result in a considerably lower performance in terms of ton-kilometers.

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8. There have been no recent strikes or re-strikes against bulk oil storage facilities or electric power plants in North Vietnam.* There are localized problems in petroleum distribution and storage, but there is no over-all petroleum shortage in the country. Bulk petroleum storage facilities have been reduced in capacity by about 17 percent. No action has been taken to rehabilitate any of these bombed POL storage facilities. However, recent photography discloses the existence of seven additional petroleum storage sites distributed in an arc at distances of about 30 miles north of Hanoi. These sites include a total of about 300 semi-buried tanks (each about the size of an airport refueling tank truck), but represent total storage of only 2,200 tons. The size of the tanks and the number of sites suggest that this storage is intended to disperse petroleum supplies rather than provide for significant reserves. The reduction of total generating capacity by about 14 percent continues to cause relatively minor curtailment of mining and industrial operations and loss of power for irrigation systems. A continuing study of all available source material has disclosed no recent information concerning bomb damage to machine building plants or to non-food light industrial plants. Priorities and alternate means of communication have been established in the telecommunications industry.

9. There is no evidence that the air strikes have further aggravated the tight food situation in North Vietnam. The harvest promises at best to be mediocre, and in light of increased distribution problems because of the war the tight food situation will continue. Labor shortages in the agricultural cooperatives continue to be aggravated because of the air strikes.

*This assessment does not take into account the 15 and 20 December air strike against the Uong Bi Thermal Power Plant. Preliminary assessment of 20 December photography, however, indicates that these strikes apparently inflicted no significant damage to the plant.

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SECRETNorth Vietnamese Political and Public Reactions

10. There continues to be no indication of any significant decline in North Vietnamese morale. Regime propaganda continued to stress the resolve and ability of the Vietnamese to ultimately defeat the "US aggressors." Hanoi paid particular attention to the Vietnam protest movements in the US and cited them as an indication that the cost of the war in men and materiel could ultimately undermine American morale and force a change in the US policy toward the war. This theme was generally coupled in DRV propaganda with claims of world-wide support for the Vietnamese Communists and references to the recent Viet Cong "victories" over US and GVN forces. Although both these themes were designed to sustain the fighting will of the insurgents as well as the DRV populace, they probably accurately reflect current Hanoi estimates of the situation.

11. The disruptive effect of the air strikes on the DRV's economy was reflected in the regime's propaganda. This recently took the form of efforts to spur the populace on to greater patriotic endeavors in order to meet and overcome the difficulties caused by the strikes. A party daily editorial on 18 November in taking note of the disruption in transportation and communications called upon persons to pay more attention to these two areas and to be "determined, urgent and flexible in meeting war circumstances." In addition, other articles stressing the necessity of increasing food production and distribution as well as improving public order "for the sake of the anti-US and national salvation cause" were highlighted in DRV propaganda.

12. The growing disruption caused by the bombings also appeared to be the motive behind Hanoi's dispatching its high-ranking economic expert, politburo member Le Thanh Nghi, to Moscow, Peking and Pyongyang in late November. Nghi's trip--his second in less than six months--is probably an indication that the bombings have affected the DRV economy to such an extent that consultations on additional economic aid from the Bloc are now needed. Through Nghi's trip Hanoi may be seeking additional supplies of capital equipment for bomb damage repair and

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perhaps even food, clothing and other necessities. The North Vietnamese may also believe it essential to get some long range commitment on future Bloc assistance in the event that US bombings destroy most of North Vietnam's industry and transportation system.

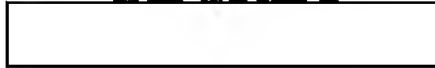
Effects on Military Targets

13. There has been no recent, appreciable change in the intensity of air operations against North Vietnam. The air effort continued to place emphasis on the armed reconnaissance program, aimed at inhibiting movement over the lines of communication and restriking and neutralizing previously attacked targets. The JCS-designated targets recently attacked have been predominantly rail and highway bridges north of 20 degrees. As the air strikes concentrated on targets north and east of Hanoi, the requirement to neutralize SA-2 sites accelerated. Armed reconnaissance aircraft have continued to attack SA-2 sites. These attacks produced few dramatic results, but possibly caused a more frequent displacement of SA-2 firing elements which could result in reduced operating efficiency. Since no major effort has been expended against barracks, supply and ammunition depots and POL storage areas, related national capacities have not been appreciably altered. The North Vietnamese are continuing their efforts to disperse such vulnerable elements of their infrastructure as barracks, supply and ammunition depots. Recent evidence points to a new program of dispersing POL stocks to locales north of Hanoi within the SAM protected area.

14. While there are periodic indications of specific, tactical, reactions to the air offensive, the most overriding reaction is the emergence of strategic indicators which suggest Hanoi's willingness to persevere indefinitely. These latter indicators include dispersal of industry, partial mobilization, intensified coordination with other Communist countries to obtain increased military aid, and long range construction programs aimed at improving military air facilities. In a tactical sense, the North Vietnamese have recognized the effectiveness of US measures to counter the SA-2 threat. In

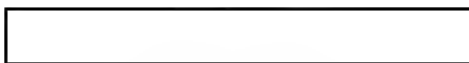
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this regard, they have taken action to degrade our capability to detect and counter FAN SONG (SA-2 guidance radar) operations by compressing the operating time of the vital guidance system.

15. While the air strikes against logistics facilities and sensitive lines of communications are causing major distribution problems, these operations have not significantly reduced the DRV capability to continue to support the Communist forces in Laos and South Vietnam. (Chart)



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SECRETANNEXRESULTS OF STRIKES ON DRV TARGETS a/ THROUGH TUESDAY, 14 DECEMBER 1965

FIXED TARGETS	TARGETS STRUCK		NO. AT-TACKS	STRIKE ^{c/} SORTIES	% OF NAT'L CAPACITY DESTROYED - INACTIVE		
	NO.	% b/					
BARRACKS	41	24.38	171	2516	14.70	3.81	
AMMO DEPOTS	13	84.31	51	1108	34.41	34.53	
POL STORAGE	4	19.0	7	90	16.7	.50	
SUPPLY DEPOTS	18	18.3	43	528	10.18	.70	
POWER PLANTS	5	13.5	15	133	13.5		
MARITIME PORTS	4	12.0	9	157	5.7		
RR YARDS	1	7.0	5	75	5.2		
EXPLOSIVE PLANT	1	100	3	28	57		
AIRFIELDS	4		9	268	Runways cratered, 25% buildings destroyed at airfields attacked.		
NAVAL BASES	2		10	136	45% buildings destroyed at bases attacked.		
BRIDGES	40		85 ^{d/}	1828	37 not usable.		
COMMO INSTALL	2		2	15	2 destroyed.		
RADAR SITES	13		48 ^{d/}	348	3 destroyed, 6 damaged 4 redeployed prior to attack.		
SAM SITES	22		26	211	11 possibly damaged, 3 not observed, 1 destroy.		
LOCKS	1		1	2	1 destroyed.		
(Dropped from Tgt list)					<u>RESULTS e/</u>		
FERRIES	11		7 ^{d/}	44	Vessels	De- stroyed	
						832	
TOTAL SORTIES					Vehicles	483	563
AGAINST FIXED TARGETS: 7487					RR Stock	236	604
ARMED RECCE SORTIES: 15948							
TOTAL OF ALL SORTIES EXCEPT SUPPORT: 23435							

a/ Assessments are based on best information received, will be refined as more accurate information becomes available.

b/ Percentages of national capacity where appropriate.

c/ Strike plus flak suppression sorties.

d/ Also numerous attacks during armed recce and other missions.

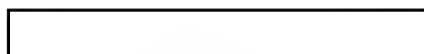
e/ Also numerous installations, AA sites, bridges, etc, attacked and road and rail cuts made.

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22 December 1965

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